What is claimed is:

1. A system for controlling a permanent magnet electric motor, comprising a motor controller and a power stage, said motor controller using phase currents of the permanent magnet electric motor to generate voltage-controlling signals in relation to both changes in speed and torque of the permanent magnet electric motor, which are fed back to the permanent magnet electric motor via the power stage.

2. The system for controlling a permanent magnet electric motor according to claim 1, wherein said permanent magnet electric motor is a three-phase permanent magnet electric motor provided with a rotor and a stator, each one of the phases thereof carrying a current, i_a, i_b and i_c respectively.

3. The system for controlling a permanent magnet electric motor according to claim 1 or claim 2, wherein said motor controller is a park vector rotator unit that generates continuously rotating angles.

4. The system for controlling a permanent magnet electric motor according to any one of claims 1 to 3, said system continuously responding to changes of speed and torque of the permanent magnet electric motor as well as to changes in ambient conditions.

5. A method for controlling a permanent magnet electric motor comprising:

determining a current of each phase of the permanent magnet electric motor;

obtaining voltage controlling signals in relation to both changes in speed and torque of the permanent magnet electric motor; and

feeding the voltage controlling signal back to the permanent magnet electric motor.

6. The method for controlling a permanent magnet electric motor according to claim 5, wherein said determining a current of each phase of the permanent magnet electric motor comprises measuring a current of two phases thereof and calculating a current of a third phase using the relation: $\sum_{three\ phases} i = 0$ (4).

7. The method for controlling a permanent magnet electric motor according to claim 5 or claim 6, further comprising computing a current torque T of the permanent magnet electric motor.

8. The method for controlling a permanent magnet electric motor according to claim 7, wherein said computing a current torque T comprises rotating the currents of each phase of the permanent magnet electric motor by an angle $-\theta_n$ to output two currents I_d and I_q, according to the following relations on a d-q axis fixed on a rotor axis of the permanent magnet electric motor:

$$I_d = 2/3 \times [i_a \times \cos(\theta_n) + i_b \times \cos(\theta_n + 120°) + i_c \times \cos(\theta_n - 120°)] \quad (2) \text{ and}$$

$$I_q = 2/3 \times [i_a \times \sin(\theta_n) + i_b \times \sin(\theta_n + 120°) + i_c \times \sin(\theta_n - 120°)] \quad (3).$$

9. The method for controlling a permanent magnet electric motor according to any one of claims 6 to 8, wherein said obtaining voltage controlling signals comprises:

computing a current rotating angle θ_{n+1};

computing two voltage outputs V_q and V_d; and

rotating the voltage outputs V_q and V_d by the angle θ_{n+1}.

10. The method for controlling a permanent magnet electric motor according to claim 9, wherein said computing a current rotating angle θ_{n+1} is done using a current torque T and a speed ω of the permanent magnet electric motor with the formula $\theta_{n+1} = \theta_n + k_1 \times \omega + k_2 \times T$ (1) where k_1 and k_2 are constants.

11. The method for controlling a permanent magnet electric motor according to claim 9 or claim 10, wherein said computing two voltage outputs V_q and V_d comprises:

computing the voltage output V_q on a d-q axis fixed on a rotor axis: $V_q = PI(I^* - I_d) + k_3 \times I_q$ (5) where k_3 is a constant, “PI” referring to a proportional and integral operator, defined as follows: $PI(x) = ax + b\int x\,dt$ (6) where a and b are constants and integration is over time; and

computing the voltage output V_d, according to the following equation on the d-q axis fixed on the rotor axis: $V_d = k_5 \times I_d + k_4 \times I_q \times \omega$ (7) where k_4 and k_5 are constants.

12. The method for controlling a permanent magnet electric motor according to claim 10 or claim 11, wherein said obtaining voltage controlling signals comprises obtaining three voltage controlling signals V_a, V_b and V_c according to the following equations: $V_a = V_d \times \cos(\theta_{n+1}) + V_q \times \sin(\theta_{n+1})$ (9), $V_b = V_d \times \cos(\theta_{n+1}+120°) + V_q \times \sin(\theta_{n+1}+120°)$ (10) and $V_c = V_d \times \cos(\theta_{n+1}-120°) + V_q \times \sin(\theta_{n+1}-120°)$ (11).

13. The method for controlling a permanent magnet electric motor according to any one of claims 5 to 12, wherein constants are set based on a number of parameters selected in the group comprising a sampling rate of a

computer to be used, conditions of a power drive, sensitivity of current sensors used for current measurements and characteristics of the permanent magnet electric motor.

14. A circuit for controlling a permanent magnet three-phases electric motor provided with a rotor and a stator, comprising a rotator allowing rotation of current signals of the phases of the permanent magnet electric motor from a stationary frame to two decoupled current components in a rotor synchronous frame along a direct axis (I_d) and a quadrature axis (I_q) respectively; a proportional and integral operator for deriving a voltage (V_q) along the quadrature axis and a voltage (V_d) along the direct axis; a rotator allowing rotating the voltages V_q and V_d back from the rotor synchronous frame to the stationary frame to yield terminal voltages V_a, V_b and V_c of the permanent magnet electric motor.

15. A method for controlling a permanent magnet three-phases electric motor provided with a rotor and a stator, comprising rotating current signals of the phases of the permanent magnet electric motor from a stationary frame to two decoupled current components in a rotor synchronous frame along a direct axis (I_d) and a quadrature axis (I_q) respectively; deriving a voltage (V_q) along the quadrature axis therefrom; deriving a voltage (V_d) along the direct axis; rotating the volatages V_q and V_d back from the rotor synchronous frame to the stationary frame to yield terminal voltages V_a, V_b and V_c of the permanent magnet electric motor.

16. A method for controlling a permanent magnet electric motor having three-phases each supporting a current i_a, i_b and i_c respectively, comprising:

determining the currents i_a, i_b and i_c;

rotating the currents i_a, i_b and i_c by an angle $-\theta_n$ to yield currents I_d and

I_q;

computing a current torque of the permanent magnet electric motor;

computing a current rotating angle θ_{n+1};

computing a voltage output V_q;

computing a voltage output V_d;

rotating the voltages Vq and V_d by the rotating angle θn+1 to yield three voltage controlling signals V_a, V_b and V_c; and

applying the voltage controlling signals V_a, V_b and V_c to the permanent magnet electric motor.